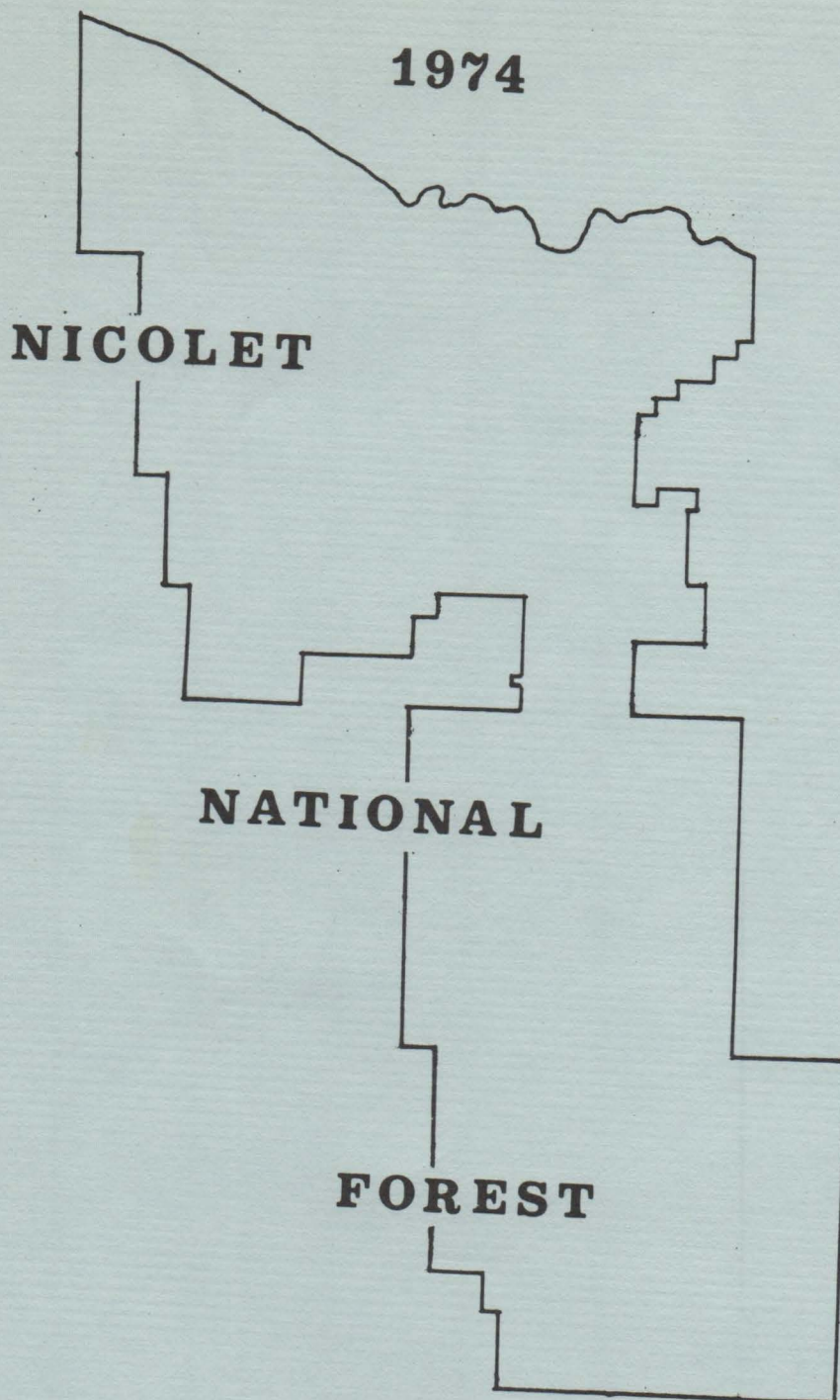


# SPRUCE BUDWORM DEFOLIATION



USDA, FOREST SERVICE  
NORTHEASTERN AREA  
STATE and PRIVATE FORESTRY  
FOREST PEST MANAGEMENT

REPORT NO. S-6-74



# 1974 SPRUCE BUDWORM SURVEY

## NICOLET NATIONAL FOREST

### INTRODUCTION

The spruce budworm, Choristoneura fumiferana (Clem.) moderately to heavily defoliated about 600 acres of balsam fir and white spruce in T40N R12E in 1973.<sup>1/</sup> Erickson reported the spruce budworm populations to be on the increase in the area. The Forest reported continuing defoliation and requested an evaluation of the 1974 conditions.

### SURVEY METHODS

An aerial survey was flown August 7 to delineate areas of spruce-fir defoliation. Standard sketch-mapping methods were used with flight lines spaced 6 miles apart. The northern three districts were flown on east-west flight lines and the southern two districts on north-south flight lines.

The egg-mass and ground defoliation survey was completed August 8. Sixteen plots were established within and near defoliated stands observed during the aerial survey. Each plot consisted of 3 trees with 3 fifteen inch twigs taken from mid-crown level of each tree.

The egg-masses were counted and separated as viable or parasitized. Defoliation of each sample twig was estimated as to the degree of foliage loss on current shoots as follows:

<u>Defoliation</u>	<u>Description</u>	<u>Class</u>
0-5%	None	0
6-25%	Light	1
26-50%	Moderate	2
51-75%	Heavy	3
76-100%	Severe	4

The sample branch classes were averaged to determine the overall plot defoliation class.

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<sup>1/</sup> Erickson, Glen 1973. Reconnaissance survey - spruce budworm defoliation on the Nicolet National Forest - 1973. Northeastern Area State & Private Forestry, St. Paul F.O. Report S-9-73.



## RESULTS AND DISCUSSION

A total of about 27,500 acres are contained within the portions of the 10 outbreak areas that lay within the boundaries of the Forest (Figure 1). Nearly 10,000 acres or 36 percent are type as spruce-fir or mixed conifer swamp (Table 1). All of the infested areas are in the northern half of the Forest.

The ground plot defoliation data show approximately 60% of the type acres have heavy to severe defoliation. The defoliation to date has not caused tree mortality or top-kill. Continued heavy to severe defoliation next year in these infested stands could lead to top-kill in 1975 and initial tree mortality in 1976.

The egg-mass data indicate a continuing population potential to cause moderate to heavy defoliation in 9 of the 16 plot areas. Without the high level of parasitism in several of the plot areas the anticipated defoliation levels based on total egg-masses would be higher in the heavy to severe classification.

In comparison with the 1973 survey it can be said that the general infestation has increased from 600 acres to 10,000 acres of spruce-fir type, but insect population levels overall have not increased.

## RECOMMENDATIONS

1. Forest surveillance programs should be encouraged to locate and report defoliation in 1975.
2. The Forest should consider the harvest of severely infested stands or conduct salvage operations when necessary.
3. Forest Pest Management continues to evaluate the problem.

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Entomologist

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Technician



Table 1. Acreages by townships within the spruce budworm outbreak areas, Nicolet National Forest - 1974

T	R	Gross Acres	Type Acres
40	11	784	32
40	12	4,176	1,024
39	14	6,704	3,088
39	15	1,696	560
38	12	1,648	1,104
38	12	1,184	512
38	13	2,992	784
37	12 <sup>a</sup>	4,480	1,888
37	13 <sup>a</sup>	2,976	464
37	15	896	528
	Total	27,536	9,984

a/ National Forest acreages only.

Table 2. Spruce budworm egg-mass counts and defoliation classes for plots in the Nicolet National Forest - 1974

Plot Number	Location	No. Egg-Masses			Defoliation Class
		Viable No.	Parasitized No.	%	
1	T38N, R12E, S20	7	1	12.5	3
2	T38N, R12E, S24	14	0	0.0	4
3	T38N, R12E, S25	2	6	75.0	2
4	T37N, R12E, S16	5	5	50.0	1
5	T37N, R12E, S20	2	16	88.8	4
6	T37N, R12E, S30	25	13	34.2	4
7	T37N, R13E, S21	0	1	100.0	3
8	T37N, R13E, S12	14	5	26.3	2
9	T37N, R15E, S18	10 <sup>a</sup>	0	0.0	1
10	T37N, R15E, S24	0	1	100.0	2
11	T39N, R16E, S31	3	1	25.0	4
12	T39N, R14E, S9	3	1	25.0	4
13	T40N, R14E, S32	21	3	12.5	4
14	T40N, R12E, S17	8	2	20.0	2
15	T40N, R12E, S20	7	2	22.2	4
16	T40N, R12E, S30	2	0	0.0	4

a/ All trees sampled were balsam fir except white spruce in plot 9.



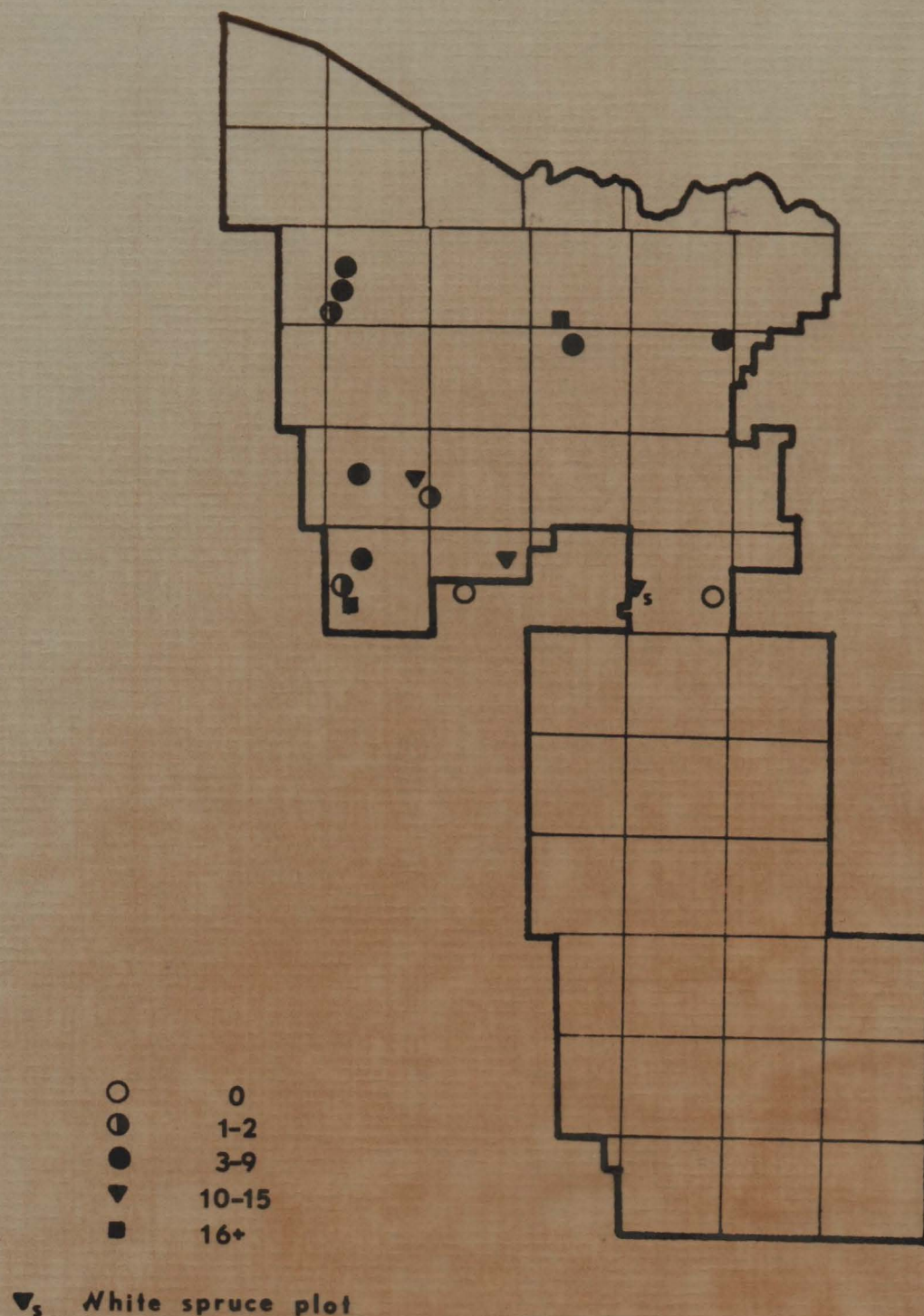
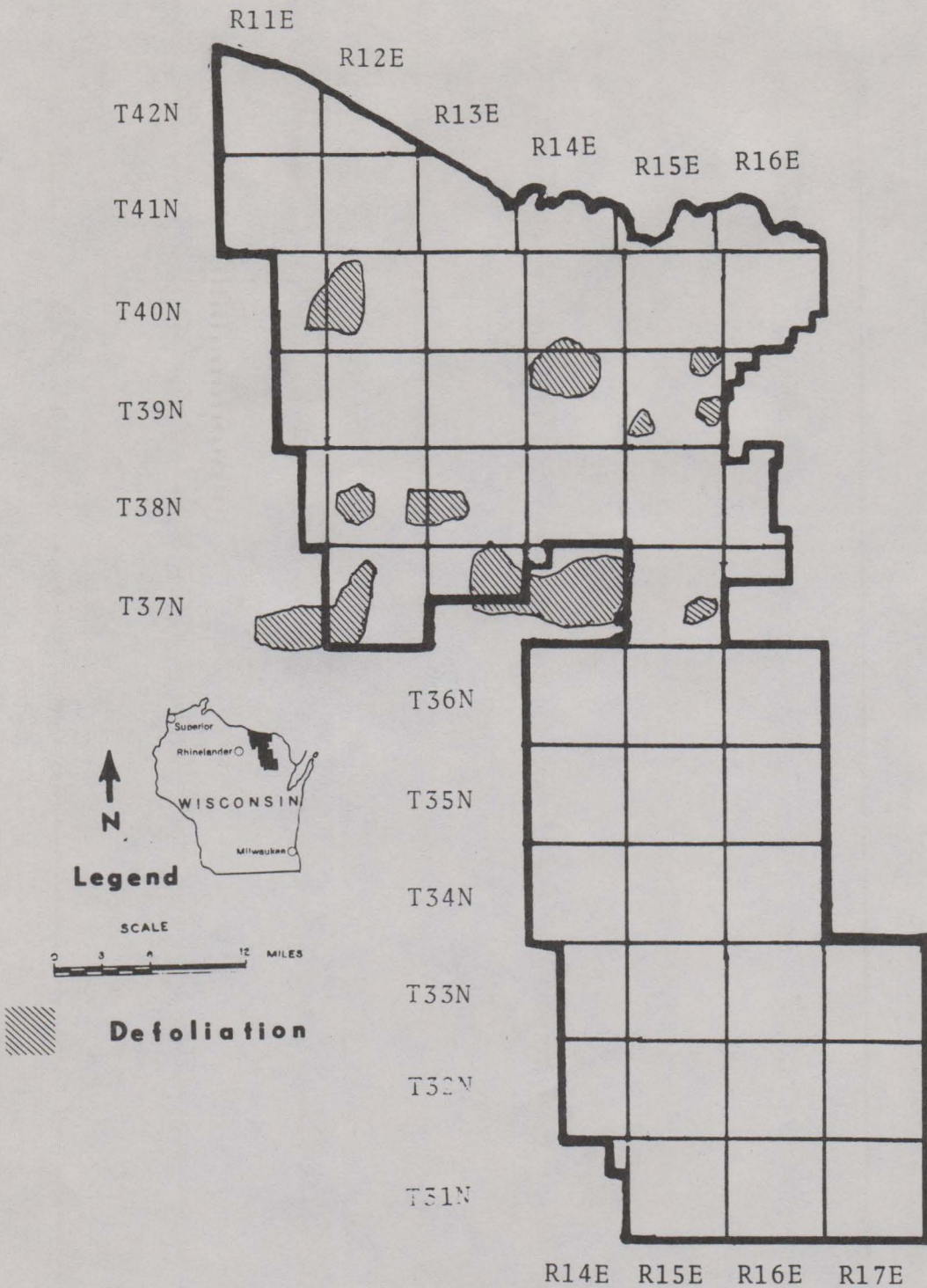


Fig. 2 Spruce Budworm Egg-mass Counts By Plot Location - 1974

# NICOLET NATIONAL FOREST



**Fig.1 Spruce Budworm Defoliation - 1974**